HELP SCREEN

Wait – er, what about the tip?

Knowledge is like muck – er, money – only good if it be spread. *Help Screens* is the very place to spread it. Just watch those tiny ideas grow into giant tips. Yes, this is the column that needs no EC subsidies to reach its quota. Yes, it's *Help Screens*, where all the answers are organically grown – never mind the odd bug, just feel that New Age aura. Once again I've room for only a selection of your many fact-packed letters and frustrating problems. But keep them coming – the more I get on subject the more I'm likely to address that particular topic that very month. Although I can't answer questions on a personal basis, I will try to acknowledge any that arrive with an SAE. On with the show.

We want your input. If you're a newcomer to the super soaraway world of PCs then you may need a helping hand over the rough parts – feel free to ask. All questions welcome, the answers are usually relevant to many others.

The experts among you can use these pages to pass on a little learning. Perhaps even to show off a little. See your name in print and gain some fame all in exchange for a few lines of hard won wisdom. There are going to be tricks you've learned to use that make your life easier. Let others know the problems and the solutions – they're often solutions to other problems as well.

It doesn't matter whether you think they're important, your experiences could save someone else hours of frustration. Share the thrill of discovery with us – in all its gory detail, please, and be in with a chance at a total of £50 worth of real money I'm trying to give away every month. Send those tips to Steve Patient, *Help Screens*, PC PLUS, 30 Monmouth St, Bath, BA1 2BW.

This symbol indicates a query or a tip from someone just starting out with the PC. Either someone for whom all computing is new or perhaps a reader moving up from a different machine. Either way it should be self explanatory.

This indicates a letter concerning the PC PLUS *SuperDisk*. Advice on using the various programs and new twists to old favourites.

This is the hackers' haunt. Nothing is too technical for this section. Some may find it more baffling than enlightening but it offers something to get your teeth into.

Just because you use your PC every day doesn't mean you're not ocassionally going to be baffled. This is the heading for tips on batch files, pop-ups and utilities.

Danger area! Some of these tips can lead to tears before bedtime. Handle them with extreme caution and remember, PC PLUS can't be held responsible for any data loss or other damage – you have been warned!

INVISIBLE DRIVE

Single drive machines have one drive, right? Wrong. What about that fabulous virtual drive that no-one seems to remember? This can be set to 300K if required. As an example of just how useful it is take unarchiving the shareware word processor *Galaxy*. Unarchiving from A:\ to A:\ would take 27 disk changes according to the batch file that was about to do it. But if you put the archived program and the unarchiver into a large virtual drive it takes no disk changes and no longer than 30 seconds. Yours hoping this sounds very clever.
Edward Bradburn
Maidstone

I've liked RAM disks (or virtual disks) since my days as an Amstrad PCW owner. They're blindingly fast, unobtrusive and flexible. The utility that sets them up is usually called either RAMDISK.SYS or VDISK.SYS and has to be run from the CONFIG.SYS file – usually before everything except expanded memory managers. A sample line might be:

```
DEVICE=C:\VDISK.SYS 300
```

where 300 is the number of kilobytes to allocate to the virtual drive. Often, if you've extended or expanded memory it can be used instead of some of the more valuable 640K. A large RAM disk is a great place to run compilers from as well. And yes, your unarchiving solution is clever. Any fool can own a shiny set of tools but a clever man gets more use out of them.

PAGE PROBLEMS

I use an Amstrad PC1512, *Ability* and a Panasonic KX-1540 printer. The problem is that this combination will not print correctly to paper. Though the first sheet is correct all subsequent sheets have a large space in them. Other programs I use print out correctly. The Epson LQ driver is the one I'm using – it works best. It seems that it is a printer driver problem. Migent is unable to solve this problem – can you help?
Niall P Heron
Dunmurry
Co. Antrim

Many word processing packages (like *WordStar*) include a utility to build your own printer driver – but not *Ability*. *Ability Plus* does include a utility to edit an existing printer driver, though, so it might be worth upgrading.

Migent's technical team tell me that they will write a printer driver for any printer as long as the manufacturer is willing to loan them one. Migent also has a technique for assessing the correct page length to set which they are happy to share with *Ability* users. By contrast with Migent, Panasonic was not very helpful at all.

However, since printer control is clearly a priority for you (your letter was on a non standard paper size for example) why not go for a word processor that makes printer control easy – I'd recommend *LocoScript PC* – it easily has the most intuitive and total printer control of any word processor I have come accross.

WINDING DOWN

I have an Amstrad PC2086 with a 40 Mbyte hard disk set up as with a 30 Mbyte and 10 Mbyte partition. However, in my experimentation with different disks and DOS's I seem to have lost 9 Mbytes of memory. I have tried various versions of MS-DOS and FDISK but still I have only 614 tracks available (that is 31 Mbytes).
Chris Fisher
Southampton

This is strange, the PC2086 comes as standard with a 30 Mbyte hard disk. The PC2286 is the one with the 40 Mbyte hard disk. Are you certain you ever had those extra 10 Mbytes? Assuming you did then mucking about with FDISK is the problem (it's because you can cause so much damage with it that MS-DOS manual writers often hide it away in an appendix). Without your disk in front of me I can't be certain what you've done but still, let's make an educated guess.

You still have the same size hard disk but have probably deleted the extended partition. MS-DOS versions before 4.0 can only access 32 Mbytes so any extra megabytes go into an seperate section called an Extended Partition. This is diveded up into logical drives, D: E: and so on as required. If it isn't there MS-DOS isn't going to access it.

Try the Create Extended Partition option from the FDISK menus FDISK will tell you how large an extended partition it can make – if it can make one at all.

If this doesn't work, the best option is to back up your data and then pay someone competent to sort it out (how you determine

their competence is a sub-problem – I suggest a payment by results agreement). My final piece of general advice: if it isn't broken – don't fix it.

SERIAL KILLERS

I am having problems in printing IBM extended ASCII graphic characters from an Okimate 20 serial printer. I have written a BASIC program to print the characters 179-255 to the screen and this works, but when redirected to the printer all I get is 34567890 etc. A colleague has told me that the Okimate is not a true Epson compatible.
T J Collins
Chelmsford

I hate serial printers. You're doing very well to have it working at all. A lot of second hand serial printers are beginning to appear from old mainframe sites – often with no documentation. I assume you have a manual for the Okimate to have got this far. First off, does it support the IBM extended character set at all? If so then the most likely reason for failure is that you're sending it 7-bit data rather than 8-bit. This is set using the MODE command on the PC and using DIP switches on the printer.

```
MODE LPT1:=COM1:
MODE COM1: 1200 N 8 1 P
```

These commands tell the PC to redirect printer output to serial port 1, sending data at 1200 baud, no parity, 8 data bits, 1 stop bit and to keep trying despite timeouts. Check the printer manual to find out how to set it up the same way.

AND AGAIN

I recently acquired a Ricoh 1600P heavy-duty serial printer but can't make it work with my PC. Nothing I do seems to make any difference even though it works perfectly well on the self test.
Steve Bridges
Trowbridge

Older serial printers can be a little weird. First off, this one requires a signal on pin 11, which is distinctly non PC standard, but even that won't help you. The printer's RS232 interface, while using the same pin-outs as the PC, doesn't use the same voltage levels. On the PC's RS232 low is 0v and high is +5v. On the 1600P low is – 5v and high is +5v. As originally defined, that was the minimum voltage range that RS232 dealt in. Clearly, without some buffering circuitry between them they are never going to talk to each other. Sorry.

DRIVEN MAD

I refer to the letter in the November issue from Ashraf Ali. I had the same problem following an upgrade. I also added a 3.5-inch disk drive and installed PC-DOS 3.3. The suggested solution resulted in the message 'Parameter not supported'.

The problem lies with MS-DOS 3.3 which was introduced to support 1.44 Mbyte drives but doesn't seem to

SHORT BUT PERFECTLY FORMED

***Harvard Graphics* will only load data from *Lotus* spreadsheets or as ASCII. As a *Multiplan* user I use the Options Other menu entry to save worksheets as .WK1 files – which *Harvard* will import. Most other spreadsheets will also save files in .WK1 format.**
Frank Ellis
Maidenhead

Some *Windows* applications will only run under *Windows 3* in real mode. This can leave you short of memory. However, if you start *Windows 3* in real mode in a DOS box while running *Windows 3* in enhanced mode you get a larger memory space to work in.
Mike Hardaker
Dans le France

Like many floppy-only PC1512 owners I was plagued with demands for COMMAND.COM on quitting programs. I didn't want to stuff this on to all my disks so I set up a RAM disk just big enough to hold COMMAND.COM, copied it to this to start with and –

```
SET COMSPEC=C:\COMMAND.COM
```

Alastair Lampard
London

FLOPPY DIES

A lot of readers have commented on the Amstrad floppy drive timeout problem in issue 49, many of whom pointed out that PC PLUS gave away a program to solve the problem on the very first *SuperDisk*. Others pointed to a *TIMEOUT* program in the PDSL (tel. 0892 663298 and ask for hard disk utils – catalogue no. 1148). Thanks for the input everyone.

Not to be outdone, for an undisclosed fee our new disk editor (who speaks in hex) has written a new timeout program. This will work with any PC and is handily included on this month's *SuperDisk*

The following debug script file will create a program that changes the length of time the floppy drive is left on. The program created (called MOTOR) takes a one-character operand, a number from 0 to 9. 0 causes the diskette motor to stay on for about 14-15 seconds.

Operands from 1 to 9 set the motor to keep running for that number of seconds. The results of this program are temporary, rebooting the computer will lose the values. If an invalid operand is keyed, the program terminates without effect, and sets ERRORLEVEL to 1.

The program is best run from AUTOEXEC.BAT so that you can forget all about it. Suppose you are want a short timeout of one second; put a command MOTOR 3 in your AUTOEXEC.BAT.

```
NMOTOR.COM
RCX
36
A
MOV SI,81 ; POINT TO PARAMETERS
LODSB ; PICK UP ONE CHARACTER
SUB AL,30 ; ADJUST FOR BINARY
JZ 114 ; ZERO ? SET FOR L-O-O-O-N-G TIME
CMP AL,DD ; CARRIAGE RTN ? FINISHED EARLY
JZ 131 ; YES - FINISHED EARLY
CMP AL,F0 ; LEADING SPACE ?
JZ 103 ; YES - REPEAT LOOP
CMP AL,9 ; IN RANGE 1-9 ?
JA 131 ; NO - REJECT AS BAD
MOV AH,12 ; SET TO MULTIPLY BY TIMEOUTS-PER-SECOND
MUL AH ; DO IT !
PUSH AX ; SAVE THE RESULT
LODSB ; PICK UP NEXT CHARACTER
CMP AL,20 ; IF ANYTHING, IT MUST BE A SPACE
JZ 119 ; YES - REPEAT LOOP
CMP AL,D ; OTHERWISE IT SHD BE A CARRIAGE RTN
JNZ 131 ; NO - REJECT AS BAD
MOV AX,351E ; DETERMINE VECTOR 1E ADDRESS
INT 21 ; DO IT !
POP AX ; RETRIEVE PARAMETER
ES:MOV [BX+2],AL ; PLACE NEW RESULT
MOV AX,4C00 ; FINISH WITH NO ERRORLEVEL SET
INT 21 ; FIN
MOV AX,4C01 ; FINISH WITH ERRORLEVEL=1
INT 21 ; FIN

W
Q
```

Note that the line above the lone W must be blank. You don't need the comments in the file – they're there for information only. To create the program MOTOR.COM place all the above commands into an ASCII file called MOTOR.BUG and execute the following command line:

```
DEBUG < MOTOR.BUG > NUL
```

Many thanks for your help on this one, Wilf.

SERIAL PRINTER SPECIAL

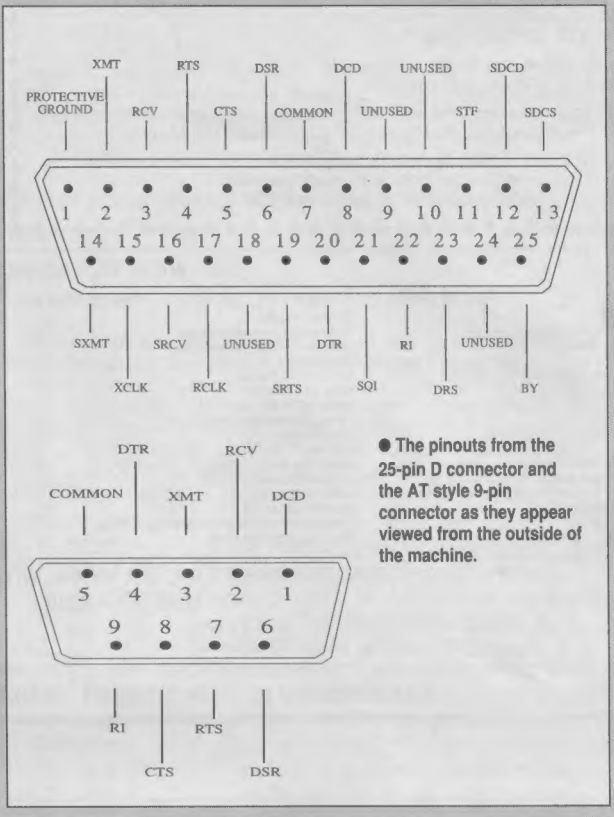
For the benefit of anyone who aquires a redundant serial printer here is some useful stuff on RS232 pin outs together with some examples of the kind of cabling to try. The complete RS232 implementation is listed here. It wasn't actually designed for computers, it's general purpose. Computers thus rarely use more than a few of these lines (about ten) and can get away with just two for one way PC to PC communications. This was recognised in the AT which uses just nine of these lines.

The RS232 can be DTE or DCE – Data Terminal Equipment or Data Communications Equipment. Almost all computers are DTE – but so are all serial printers. This means that the data lines must be cross wired so that XMT goes to RCV and vice versa. Only modems are usually set up for straight through connection.

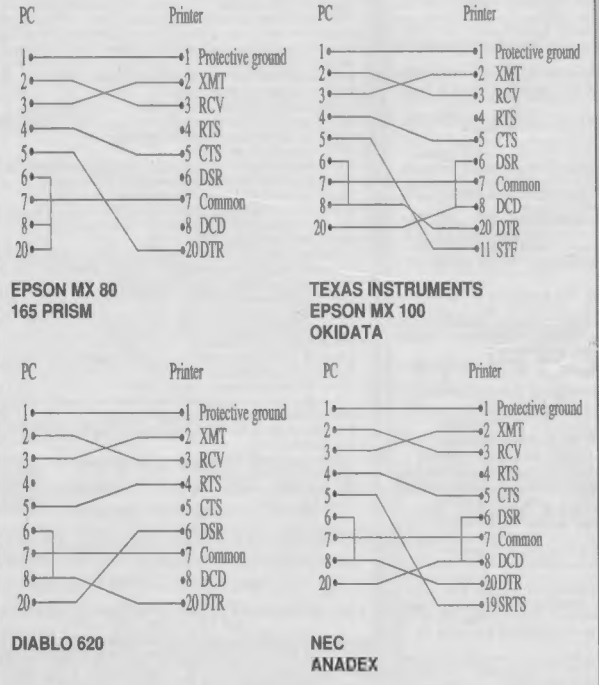
The other big problem is handshaking. This allows the PC and the printer (or the other PC) to know when to send data and when to wait a while. Handshaking is the big problem you need to solve with an unknown beast – especially serial printers. These often require exotic signals on weird lines to keep them happy.

PIN OUTS ON THE 2-PIN RS232

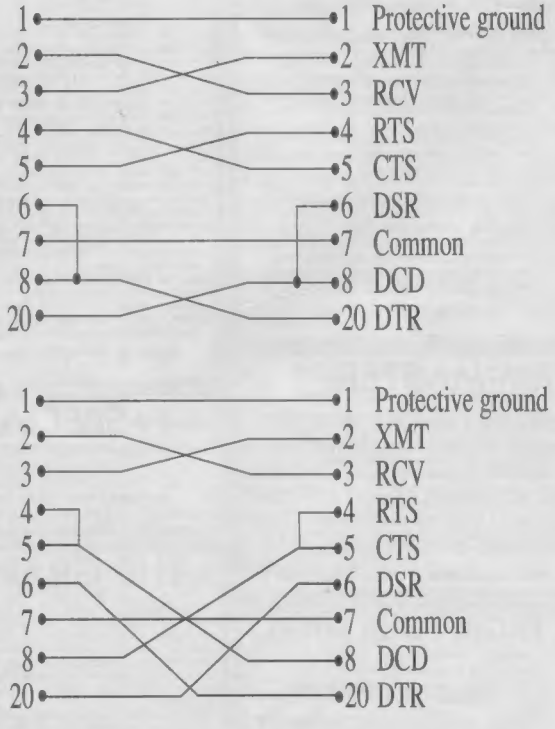
```
1 Protective ground
2 Transmitted data XMT
3 Received Data RCV
4 Request to send RTS
5 Clear to send CTS
6 Data Set Ready DSR
7 Ground
8 Data Carrier Detect DCD
9 Positive test voltage
10 Negative test voltage
11 Select XMT frequency STF
12 Secondary DCD dcd
13 Secondary DCS cts
14 Secondary XMT xmt
15 Transmit clock Xclk
16 Secondary RCV rcv
17 Received clock Rclk
18 Local loopback
19 Secondary RTS rts
20 Data terminal ready DTR
21 Signal quality SQI
22 Ring indicator RI
23 Data select rate DRS
24 External transmit clock
25 Busy - standby BY
```



● The pinouts from the 25-pin D connector and the AT style 9-pin connector as they appear viewed from the outside of the machine.



● Some sample connections for serial printers. This list is by no means exhaustive. I'd be interested in any cable connections others have found to work with various serial printers.



● These connections form what is known as a Null Modem cable. The most likely arrangement to work in PC to PC connections is the first, the other one may well work elsewhere.

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4Dos, ver. 3.02	(1)
Freeway Cashbook, ver. 4.50	(3)
Freeway Payroll, ver. 8.50	(3)
Electronic Thesaurus	(1)
Graphic Workshop	(1)
Clipart Various	Please ring
Typesetter. Desk Top Publisher	(1)
The Rubicon Publisher	(2)
Quickfont and Friends. Quickfont, plus courier & old english fonts	(1)
Invoice Manager	(1)
Arcade Games 9	(1)
Arcade Games 10	(1)
Arcade Games 11 Pharaoh's Tomb, Hovercraft and Vegas Johnny's Poker	(1)

Program	No. of disks
Arcade Games 12. Chopper Commando, Dblocks and Frazzle	(1)
Formgen and Filler	(1)
W.P. Dropcaps	(1)
The Screen Image Editor	(1)
235 Recipes	(1)
Home Insurance	(1)
Memory Bank	(1)
The Animated Alphabet	(2)
Musical. More Piano Tunes	(1)
The Order Pro	(1)
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Calendar Keeper	(1)
Doctor Data Label	(1)
Contact Plus	(1)
SBAS Invoicer	(1)
SBAS Small Business Package	(1)
Imageprint and Font Editor. Two programs for editing fonts,and producing high quality printing. (IBM/EPSON)	(2)
RAMdesk	(1)
Kindermath	(1)

Program	No. of disks
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BACKED UP

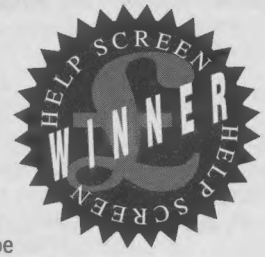
In PC PLUS issue 49 you asked for short illustrative batch files that others can expand on. Here's one that is very short in its basic form but still very useful, and which has lots of scope for expansion. Its purpose is to ensure that, on leaving an application program the relevant data is backed up to a floppy disk.

```
REM Batch file CALLPRG1.BAT
REM to call PROGRAM1 and back up data
ECHO OFF
CLS
PROGRAM1
ECHO Insert back up disk in drive A
PAUSE
COPY DATA*.* A:
ECHO Back up completed; remove disk from drive A
PAUSE
```

It's used by calling the batch file instead of the original application. Obviously `PROGRAM1` and `DATA*.*` would be replaced with names relevant to the user. Possible improvements include:

1/ Using full path names or CD commands to change to the correct directory automatically.
2/ The backup method can be replaced with a commercial utility that compresses or archives files.
3/ Additional commands relevant to the application can then be added, like mode commands to engage a specific printer.
4/ A utility to provide friendly looking screens can be used to front end the backup itself.
5/ The batch file can be called (and exit to) a menuing system.
6/ The backup could be made option.

A C Bradley
Congleton



If replacing lost work involves more than just retyping material, then backing up at the end of each week, or even each day, may not be enough to secure work. It makes sense to back up work the moment it's produced. This simple idea ensures that quitting a word processor, spreadsheet, desktop publishing package or whatever will result in a backup of the latest work.

One obvious improvement would be to use XCOPY instead of COPY. This will ensure that only new files and those altered since the last session are copied. To do this you would replace the line

```
COPY DATA*.*.DOC
```

with the line:

```
XCOPY DATA*.* A: /M /V
```

This will copy new files and altered ones then turn off the archive bit in the source files so that they wouldn't be copied again. The /V switch verifies that the copy is successful. You could also use it for copying subdirectories. In fact we were so taken with this little batch file that Wilf Hey – our *SuperDisk* editor – felt inspired to add to it as well – see his *Programmer's Workshop* for the results. Your copy of *Batcom* will soon be on its way (courtesy of Ctrl-Alt-Deli).

recognise their half size cousins. While DRIVPARM worked to tell MS-DOS about the size of the drive for FORMAT under MS-DOS 3.2 it is no longer supported in 3.3.

The only solution I can come up with is to add to CONFIG.SYS the line:

```
DEVICE=DRIVER.SYS /D:1 /F:2
```

The resulting virtual drive d: can then be accessed by the command FORMAT D:. The computer then asks for a disk for drive d: and formats it to 720k – not brilliant but it works.

Chris Morris
Leeds

It's a fair cop, guv. Mea culpa. I have DR-DOS 5.0 on my XT, to which I added a 720k drive. The line:

```
DRIVPARM= /D:1 /F:2
```

then sufficed to get it all working as expected. Of course, I foolishly assumed that Microsoft would have retained something so useful. I keep forgetting how mean Microsoft is with the goodies in its MS-DOS operating system. Still, it strikes me that your solution isn't so bad.

ROUNDING UP

I wrote a program to test the speed of floppy disk drives. It creates, writes and reads a file on the selected disk a set number of times. This program returned faster times on a friend's AT than on my XT, and my first thought was 'Wow, has this machine got fast drives'. But then I wondered if it was the machine – the AT was running MS-DOS 4.01 while I was using 3.3. Booting up my XT with 4.01 made my drives faster. After booting up with various versions of MS-DOS I constructed the following table:

VERSION	WRITE 250	READ 250
2.11	64	34
3.21	49	26
3.30	71	34
4.01	21	10

How is this possible?

On another subject. Recently I decided to buy a 40 Mbyte hard disk and asked the salesman to have it formatted under 4.01, so that it could be used as a single 40 Mbyte partition (and for the previous reason). The salesman advised against this as XTs were 'Not suited' to work with large partitions and my data would be corrupted. He also said that 4.01 'was intended for use on the PC AT'. At the time I accepted these arguments – but are they sheer nonsense?

Finally, when I decided to change my 8088 chip for a NEC V20 I was told that this would not speed up my programs and that I would need faster memory fitted.

Thomas Spittaels
Bornem
Belgium

An interesting set of observations and queries. You're right about the disk drives – I tried it. DR-DOS 5.0 is even faster on my floppy drive than MS-DOS 4.01.

There are several steps involved in writing to a disk. First the data has to be collected into conveniently-sized lumps, then the disk drive has to be checked to see if it has a disk. The directory is read, space found, an entry created, the data written, and the directory entry updated.

Bigger buffers speed things up, especially reads, maintaining directory entries in memory helps, not checking for disk changes so often makes reading and writing faster. All the data could be written before writing anything to the directory. There's also the matter of the degree of disk fragmentation to take into account and how much head movement is involved in moving from the directory track to the data tracks. The biggest tradeoff though, is usually speed against data security. The more checks you make the slower it is.

If MS-DOS 4.01 is not recommended for XTs then Microsoft ought to know about it – it doesn't. As to large disk partitions – that has nothing to do with whether you're running an XT or an AT – it's operating system dependant (I run an XT with a single partition on an XT under DR-DOS 5.0).

A V20 chip will speed up your programs a bit, not much, depending on the program. NEC's implementation performs some of the assembler instructions in less machine cycles than the 8088. Compared with faster disks or installing more memory the improvement is barely noticeable.

Finally, why is it that continental European correspondents always ask more questions per letter than their UK brethren?

MY PRINTS WON'T COME

I have been using my Amstrad PC1512 for three years and feel I know most of the ins and outs of MS-DOS. Recently I decided to scale new heights and bought a copy of Van Wolverton's book *Supercharging MS-DOS*. As a result I decided to use the PRINT command so that I could enjoy background printing. However, the following command:

```
PRINT C:\TRYIT.DOC/D:LPT1 /B:1892
   /S:25 /M:5 /U:2
```

which my manual assures me (page 312) should accomplish the deed resulted only in it asking for the name of the list device and displaying the message 'Invalid Parameter' five times. I have tried everything, only to become more and more frustrated. Does my

version of PRINT not support these parameters or am I being stupid again?
Wilf Harding
Stourbridge

I tried this on my machine and it only objected to the /B:1892 – too big a print buffer. It worked perfectly once I reduced that to 1024. The problem is clearly the `/D` switch, which specifies the port to send printer output to. I'm assuming you have a parallel printer, preferably Epson compatible, attached to LPT1:. If you've two printer ports it may be attached to the wrong one. Alternatively, you may have a serial printer and the correct switch would be `/D:COM1` or `/D:COM2`. Still, your letter suggests that you've already looked at those possibilities.

According to the manuals I have the switches for the PRINT command are virtually the same for MS-DOS 3.2, 3.3 and 4.0 so what's left? The ports LPT1:, LPT2:, COM1: and COM2: are physical devices, like an actual floppy disk drive or a monitor, so the switch tells PRINT to send output to that particular port. But MS-DOS sends printer output to a physical device via a logical device anyway, which would be connected to LPT1 by default. The logical devices are:

CON: the display device
PRN: the print device
AUX: auxiliary output
NUL: a pretend device

MS-DOS treats these logical devices as files. Thus you can copy a text file to PRN: or wherever. By default CON: is the display device, PRN: is LPT1: and AUX: is COM1:. NUL: is connected to a small moon orbiting the second planet of Arcturus. If you run

HELP SCREEN

THE SCRIPT IS THE THING

In recent reviews of communications programs I've seen references to script languages. What exactly is a script language, is it like BASIC? How do you use one? Yours in perplexity.
Graham Donovan
Sheffield

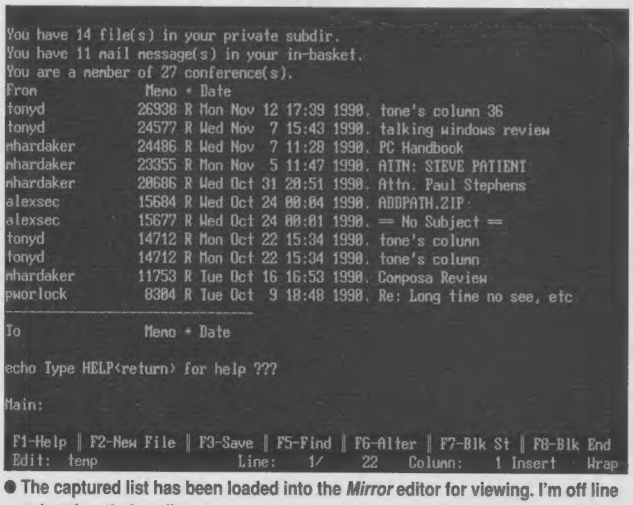
When it comes down to it a script language is merely a method of telling a comms program what to do – a lot like BASIC or any other procedural programming language. The difference between a script language and a general purpose programming language is that scripts are dedicated to the activity of computer communications.

Since with comms it often involves quite a few steps to accomplish even a simple task, steps which have to be repeated every time you do it – and since the steps are usually different on different systems – most comms activities succeed in combining tedium with irritation.

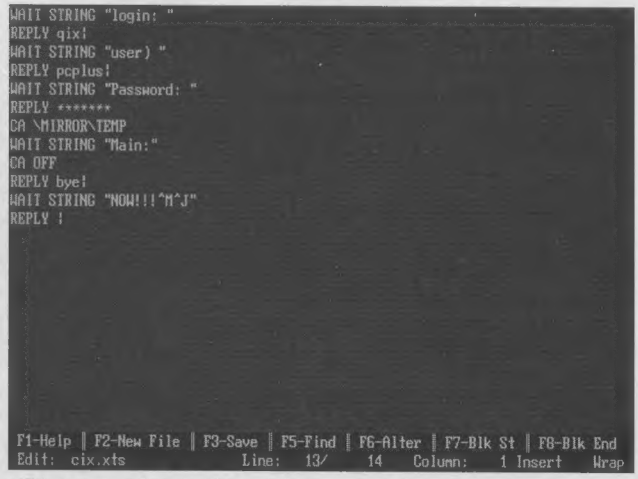
Some script languages are powerful enough to perform tasks outside their traditional range but these are really for the enthusiast. More useful is a system like that found in Softklone's *Mirror*, which I use. This is, as the name implies, a copy of another comms package, *Crosstalk*. In this a series of commands and responses are captured to a script file automatically. Thus, having logged on to a system once you have a file that will do it for you automatically, and that can be edited to extend it's range of operation or alter it. I've never met anyone who writes script files from scratch (hunches down ready for deluge from outraged comms fans).

● With *Mirror* on the screen I hit [ESC] to get into command mode and issue the instruction LR, for learn, and am asked for the name of a file. From now until the command LR OFF everything will be captured to the named file. This will run automatically if it has to same name as a log-in file and an XTS file type.

● What I'm doing is logging on to CIX to see if there's any mail I really ought to read. Since this is an action I perform frequently I'll simply capture the mail list to a file on disk and exit from CIX. However, I've spotted Tony Dennis' column so I'll download that and edit it out of the script afterward.



● The captured list has been loaded into the *Mirror* editor for viewing. I'm off line now but the whole call took several minutes – since I got distracted. But even a long distance call needn't be expensive if it's quick – and scripts don't get distracted and stay on longer than they ought.



● This is the script file that *Mirror* built for me. I've shortened the strings to look out for since line corruption sometimes makes them nonsense. I've also edited out the download I did and taken out my password so you lot can't use it. This now runs in less than 20 seconds from log on to log off at 1200 bps.

PRINT with no /D switch it will ask if the output should be sent to PRN:, just press [ENTER] to confirm it. Have you tried it without the /D: switch?

Try running PRINT with no parameter at all, just the bare word PRINT, and see what happens. After that you can use PRINT <file1> <file2> and so on to set up a print queue.

The defaults for all the PRINT switches are in fact very sensible. As a rule I generally try to get any software that can be configured to run in a default mode first just so that I know it will work. Only then do I start pushing it around.

The various switches act as follows:

/D: sets the physical device to send output to – default is LPT1:
/B: specifies the size of the print buffer in bytes – default is 512
/U: sets how many clock ticks to wait if the printer is busy – the default is 1, there are about 18 ticks to the second
/Q: sets maximum number of files in queue. Default is 10, range is 1 – 32
/M: sets how many ticks PRINT can keep control once it gets it. Default is 2, range is 1 – 255.
/T: empties the queue and throws away the current file.
/C: empties queue

Print spoolers are useful in inverse proportion to both the noise generated and the slow down on the computer.

Incidentally, I have *Supercharging MS-DOS* (from a scout jumble sale) and it's very good if somewhat idiosyncratic. It's £17.95 and the ISBN number is 155615187X.

UPGRADING

I read with interest the letter from R Ford in September's issue as to how to allow older MS-DOS utilities to run under newer versions. I have upgraded to version 4.00 and so his tip didn't help directly. But after a little experimenting (all right, a lot) I discovered that in KEYB the version number (4) is held in address H0B93 with the revision number (0) in H0B92. To alter it the procedure is:

1/ Rename the file so it has no COM or EXE extension
2/ Enter `DEBUG KEYB`
3/ Enter `E 0B92 ??` (where ?? is the version number)
4/ Enter `E 0B93 ??` (where ?? is the revision number)
5/ Enter `W`
6/ Enter `Q`
7/ Rename the file as before

This technique works with other DOS utilities as well. I hope it proves useful to other readers.
Philip Dyer
Farnham

Beginners luck I reckon. If you want your own programs to check for version numbers (important if you're using Interrupt services only introduced in later versions of MS-DOS) then Int 21 Service H30 is the one to use. AL returns the version and AH the revision, like so:

```
version()
{
union REGS sp;
steve.h.ah=0x30;
int86(0x21,&sp,&sp);
printf("ver
%d.%d",sp.h.al,sp.h.ah);
}
```

HELP SCREEN

WISDOM OF SOLOMON

Dr Alan Solomon demonstrates how to sleep on an aeroplane, mentions CIX, suggests planning for a megabyte future and astonishes vendors by observing that thieves cheat.

At the Business Computing show in September there was one vendor making a big challenge; hack into this computer, he said, and it's yours. I really ought to learn to avoid such things, but I got sucked in again, and had a go. Ten minutes after starting, I had the front off the computer and my hand on their hard disk, and all it needed was a few turns from the screwdriver on my Swiss Army Knife and the disk would have been in my pocket and over the horizon. They had told me I could use a screwdriver, and the data would have been off the disk as soon as I put it into my machine, but they ruled that I had cheated; they had wanted me to try to guess the password. I have to admit – I cheated. What did they expect? I didn't get the computer, which was a pity, as it was rather nice. They're redesigning the case, so that what I did will be impossible. My Swiss Army Knife is an indispensable part of my briefcase toolkit.

■ If you program in *Turbo Pascal*, I can thoroughly recommend the products from Turbopower. For a professional programmer, a trivial outlay frees you from the necessity of re-inventing all the wheels that everyone has to code; pop-up menus, pick lists, help systems, and much more. You can get it from Grey Matter, on (0364) 53499.

■ More travellers tales. Recently, I went to Sweden, taking my trusty Compaq 286 sewing machine, my NEC laptop and the Dip pocket PC. The Dip functions as an electronic Filofax-substitute, the NEC is used as a writing machine, and the Compaq for programming.

I've tried all sorts of ways to take things around the world, from simple 'smuggling' (you just don't declare them, on the grounds that you aren't permanently importing them or exporting them), to the full hassle of a Carnet. This time, I tried a simple letter on headed notepaper, with a list of what I was carrying. The nice man in Customs seemed entirely happy with that. You need to quote the computer serial numbers, and they also wanted to know the company VAT number. On the way back, an even nicer Customs lady was entirely happy with my piece of paper.

So, I'm going to try this system again – yes, I'm off to Australia again, to do a lecture talk on the subject of Network Security. By the way, here's a tip for how to sleep in an aeroplane. What I do, is I get down on the floor between the seats, because I can only sleep properly in a horizontal position, and 24 hours without sleep leaves me wrecked.

■ I was also at the OS/2 show. It wasn't nearly as big as the other PC shows, but there were a couple of interesting exhibits there. On the Microsoft stand, I saw OS/2 version 2, which requires a 386, as it uses the facilities that you don't get with a 286. I saw MS-DOS running in a window in the machine, it had 620K of memory, and I was told you could have sixteen of them running at once. On the other hand, there weren't many exhibitors of applications under OS/2 present. I believe OS/2 is the operating system of the future, and will solve many of the problems that we have today with MS-DOS. It isn't a solution now, but you should be planning for running OS/2.

That means two things; buy 386SX, 386 and 486 computers, and make sure you can put a lot of memory on the motherboard – even if you don't buy it populated. 4 Mbyte on the motherboard should be regarded as a minimum, and 16 Mbyte would be better. If you don't believe you'll be wanting 16 Mbyte, you should know that today, memory costs £40 per Mbyte, and that will continue to fall. I have a computer that came with 16K on the motherboard, which was chipped up to 64K, and I thought 256K would always be enough.

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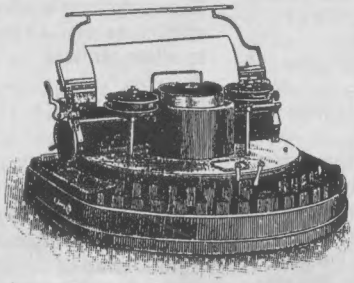

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TONE DIALLING

Tony Dennis circles a new piece of fax technology, admits to a revelation, invites you to an embassy and considers the implications of DMA as applied to serial ports.

One company hoping to do for the datacomms market what the fax has done for general office work, is Alfa Systems. Alfa's Diskfax is basically a couple of floppy disk drives fitted into the same box as a modem, with a telephone keyboard stuck on top. Operation is quite simple. Put a disk in one end; make a call to another Diskfax and all your files are copied across onto the blank disk waiting inside the receiving machine. Alfa even does a model with a hard disk drive so that files can be received unattended. Received files can be subsequently off-loaded using a serial cable and software supplied by Alfa.

The modem uses the same tones as a fax machine since Alfa reckons that this should ensure the Diskfax works over a telephone line anywhere in the world. However, the company claims a file containing 40 pages of A4 text will be transmitted by the Diskfax in just over one minute. Faxing those same pages would take closer to 20 minutes. The good news is that Diskfax automatically recognises PC (MS-DOS) and Apple Macintosh files. It therefore ignores blank parts of the disk, and thus saves time. The snag is that a working system currently requires a pair of Diskfaxes – which would cost at least £2,288. Sadly Diskfax looks set to be no more than a niche market unless some big multi-national takes an interest. More info from Alfa on 081-555 5022.

Alfa may, however, decide to licence its software to those who already own suitable fax modems. This would allow you to transmit a file to a Diskfax machine using a suitable modem. In fact, modems which support fax speeds (V26 or V27 to be precise) are becoming increasingly more common. Kerridge Network Systems recently introduced the Micro Quin – a PC card modem costing £918.85. Besides supporting fax, the Quin also offers V32 operation (9600 bps) along with the usual four modem speeds. V32 is currently the fastest standard for dial-up modems. Kerridge is on (0635) 524155.

■ Fun and games with BT's on-line version of its directory enquiry service, Phonebase (see last month's column). After the *Sunday Times* revealed that this computerised version of directory enquiries gave out addresses for people who were ex-directory, Phonebase closed for a few days. In reality, Yours Truly had revealed this very fact three days before in *The Grauniad* but failed to realise the implications. That's life. Anyway, Trevor Burke of Phonelink contacted me to say his company runs a better version of Phonebase. I'll wager it costs an arm and a leg to subscribe to Phonelink but those with loads of money can call 051-608 7080. Trevor reckons his system is much friendlier than Phonebase. Who knows, maybe BT will buy him out?

■ Young Tone recently attended the launch of SRT's range of modems. SRT is a Swedish modem manufacturer (Sweden's answer to STC) which has done well out of making modems which will work on that country's less than perfect telephone lines. Unfortunately for SRT, most Brits are connected to a BT System X telephone exchange which reduces line noise considerably. Anyway SRT modems have a top speed of 2400 bps and are pretty expensive at £746 a throw. Nevertheless they do come bundled with SRT's own Index comms software which does support Prestel. SRT also promised me that Minitel emulation (which would allow UK users access to France's videotex) system would be included if there was a demand. So here's your chance. Call SRT on (0734) 320562 and ask about it.

■ Noel Bradford, who runs The London Embassy, tells me he's re-jigged his board to run Remote Access bulletin board software which allows several users to be on simultaneously. Moreover, the main number for Noel's board has now changed to 081-342 1778 and offers 9600 bits per second access for those with a Courier HST modem. There is an additional number, 081-342 1200, which provides another two lines into the board at other speeds. Impressive stuff, eh?

■ Hidden among the reams of technical jargon surrounding IBM's recent announcement of more top of the range (Intel i486 chip based) machines, was support for a new lightning fast serial port. Called DMA serial, this port is so fast (350k bits per second) that it could even handle a high speed private data (that is KiloStream style) link available from BT. Incidentally DMA stands for direct memory access and refers to the fact that the port grabs data directly from memory (ie before the processor gets involved).

IBM's real motivation for introducing DMA serial appears to have been to avoid a potential bottleneck when printing. Normally the PC's processor is used to control the serial port. Imagine what could happen if a new IBM model 90 or 95 fitted with an ordinary serial port then finds itself employed to handle a bunch of fast laser printers. It would grind to a halt. The obvious solution is to control the serial and printer ports independently of the main processor – just what DMA does.

Strangely enough, some-one else has already thought of applying DMA technology to serial ports. That company is Hayes Microcomputer Products which introduced its ESP cards for PCs and PS/2 compatibles early in 1990. The ESP card fits into a standard expansion slot and provides two 'souped up' comms/serial ports. Hayes invented ESP because it found that the serial port (ie COM1 or COM2) on a bog standard PC could not keep up with its latest range of modems. Hayes claims its modems can reach 38.4k bps whereas you'd be lucky to get 19.2k bps (19200 baud) out of a typical PC compatible. Plug an ESP card into the PC and the problem goes away.

So what? Well, DMA could be very useful. It would allow two PC networks to swap e-mail messages at high speed over an ordinary telephone line. Furthermore when BT's all-digital network (ISDN) becomes widely available, it will make two 64k bps data channels available from your ordinary BT wall socket. DMA Serial could drive both, of course. The sort of data being sent in this way might include video signals as well as DTP pages containing high resolution graphics. The possibilities are endless. The question is – Who will end up setting the standard? Hayes or IBM?

Please send your snippets to me c/o of PC PLUS editorial or on Telecom Gold (76:MTR007); or Prestel (919993843) or to Tonyd on CIX.

HELP SCREEN

BOXED IN

I recently upgraded from *Protext 4* to *Protext 5* but my problem concerns both versions. In Box mode when I try to save or print a marked box only the first line of the box is saved or printed. Similarly, I can't move a box by undeleting it – only the first line re-appears.

I needed to split a fairly large document down the middle so that I could work on each half separately. The only way I could get around the problem was to copy the marked half to another document and save it, then do the same to the other half. Arnor claims that it's supposed to work this way.

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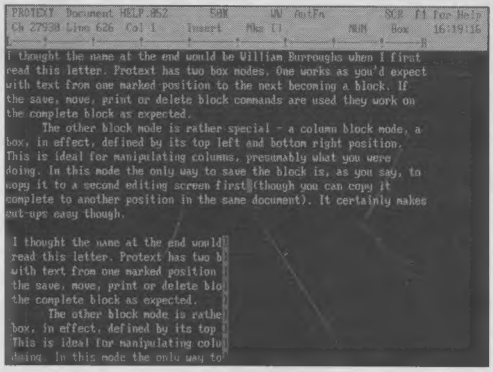

● *Protext* has two block modes. The first works much as it does in other word processors and markd a section of text for movement, deletion or copying. The second mode marks a box, a rectangular section of text

I thought the name at the end would be William Burroughs when I first read this letter (all right, so it shows my age). *Protext* has two box modes. One works as you'd expect with text from one marked position to the next marked position becoming a block. If the save, move, print or delete block commands are used, they work on the complete block as expected. A deleted block, provided it isn't too big (*Protext* will warn you if it is) will remain available and can be undeleted at some other position, as many times as required.

The other block mode is rather special, and peculiar to *Protext* – a column block mode, a box, in effect, defined by its top left and bottom right position. Instead of including all the text between the block markers *Protext* fills in the vericals with more block markers to delineate the box.

This is ideal for manipulating columns, presumably what you were doing. In this mode the easiest way to save the block is, as you say, to copy it to a second editing screen first. An alternative approach is to copy the block to the end of the exisitng document (or to a large enough gap) and then hit [Ctrl][b] to turn off box mode. You can then save the moved block as an ordinary block. document). Out of interest, if you have a mouse you can mark blocks using the cursor. In the new version of *Protext 4* (version 4.3) this has been improved still further so that blcoks can be marked simply by holding down the right hand mouse button and dragging the cursor. This works in both standard block mode and box mode.

Once a block is marked *Protext* lets you do other things to it from the command line. You can count words in a block or fix a block (which converts tabs to spaces), for example. Still, I'm glad William Burroughs didn't have *Protext*. – cut-ups are awful.

The PC PLUS Fact Panel Guide

These days there's no such thing as a 'standard' PC – instead we've got a range of different disk sizes, graphics adaptors and hardware add-ons, such as mice, modems and memory boards. This makes the claim that a piece of software 'Runs on IBM Compatibles' a bit meaningless, so we're introducing a fact panel on all our reviews which shows exactly what hardware you need to run the program, and what optional equipment the program can make use of. The fact panel has four sections, as follows:

1. Display types.

This section shows the type(s) of screen display supported by the program. Remember that your PC's display type is determined by its combination of display adaptor and monitor, so for example a PC1640 will have a Hercules, CGA or EGA display depending on the MD, CD or ECD monitor in use.
The icons are as follows:

[T] 80x25 character text-only – runs on any IBM-compatible PC.
[H] Displays Hercules monochrome graphics on Hercules-compatible machines.
[C] Displays Colour Graphics Adaptor (CGA) quality graphics on CGA, EGA and VGA machines.
[E] Displays Enhanced Graphics Adaptor (EGA) quality text/graphics on EGA and VGA machines.
[V] Displays Video graphics Array (VGA) quality text/graphics on VGA machines only.
[M] Displays Multi-Colour Graphics Array (MCGA) grapics on MCGA machines.
[15] Displays PC1512 16-colour graphics on the PC1512 only.
[Y] Displays Tandy Graphics Adaptor graphics on Tandy compatible machines.
[G] GEM [W] *Windows*
Windows and GEM are both Graphical User Interfaces, which adjust automatically to make the best use of [H] [C] [E] and [V] displays. Other types may also be supported. You may need to buy Windows or GEM separately.
Programs with just a [T] work on all IBM-compatible PCs, since all types of display adaptor support a standard text-only mode, which includes the 'IBM graphics character set' – the boxes, lines and funny faces used by many programs. Monochrome systems may interpret colour text codes (or 'attributes') as flashing, underline etc.

Other icons refer to 'all points addressable' graphics displays, used in business graphics (e.g. *Lotus*-style spreadsheets), painting and drawing programs, desktop publishers, games and others.

A program may have more than one icon – for example, [H] [C] means that the software works with both Hercules and CGA adaptors.

2. Issue Disks

This tells you what type of floppy disk the software is supplied on.

[5.25] 5.25", 360K floppy, or 1.2Mbyte if marked '1.2'.
[3.5] 3.5", 720K floppy, or 1.4 Mbyte if marked '1.4'. One icon means only available on that disk type (though check with your dealer)
[3.5] [5.25] both types supplied as standard
[3.5] or [5.25] 5.25 /3.5 choice – see price for details.

3. Minimum Hardware requirements

Items in this section are mandatory – either the program won't run at all without them, or would be unuseable in practice.The icons are:

Single floppy
Twin floppy
[HD] Hard disk
80286 processor chip
80386 processor chip
Mouse
Joystick
Matrix printer
Laser printer (Note 1)
Telephone line and modem
Minimum free RAM, after MS-DOS and any resident programs are loaded.
[EMS] Expanded Memory Specification (EMS) card (see Note 2)
Maths co-processor chip (e.g. 8087 for standard PCs, 80287 for ATs and so forth)

4. Other hardware supported

These Items are not mandatory, but the program can make use of them. The icons are the same as those used in the minimum hardware section.

Notes: 1. Most laser printers will emulate Epson FX series matrix printers, so will work in basic mode with a matrix-only program. A laser driver indicates support for special fonts and high-resolution graphics. Always double check that your particular model of matrix or laser printer is supported.
2. There are various EMS standards around, the most popular being LIM EMS version 4.0. Check that your type is supported by the program.

OUR VALUE VERDICTS

Product fact boxes also contain verdict ratings, in the range 0 - 5, covering four areas of the product – Range of Features, Overall Speed, Ease of use and Documentation – plus an overall Value verdict..

These ratings are made in the context of the program's price and intended position in the market, so a £25 filer which provides good sorting facilities might get a Range of Features rating of 4, while a £600 bells-and-whistles database which couldn't import text data might be marked down to three. The overall value verdict is made on the same basis. It is quite possible for a very expensive product to be excellent value for money because it really does do the job well, while a very cheap product might be poor value because it is too lacking in features to do anything at all.